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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/463,059	01/19/2000	TATSUYA NAKANO	2224-163P	5816

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EXAMINER

THORNTON, YVETTE C

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 06/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/463,059

Applicant(s)

NAKANO, TATSUYA

Examiner

Yvette C. Thornton

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,8-10 and 12-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,8-14 and 16 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

This is written in reference to application number 09/463059 filed on January 19, 2000.

Response to Amendment

1. Claims 5-7 have been cancelled. Claims 1-2, 8-10 and 12-16 are currently pending.

Request for Continued Examination (RCE)

2. The request filed on March 13, 2003 for a Request for Continued Examination (RCE) under 37 CFR 1.53(d) based on parent Application No. 09/463059 is acceptable and a RCE has been established. An action on the RCE follows.

Claim Interpretations

3. The examiner does not view claim 2 as requiring the choice of formula (1a-1) or (1a-2). The limitations of the instant claim are met when formula (2a-1) of claim 1 is chosen.

The following rejections are based on such an interpretation.

Double Patenting

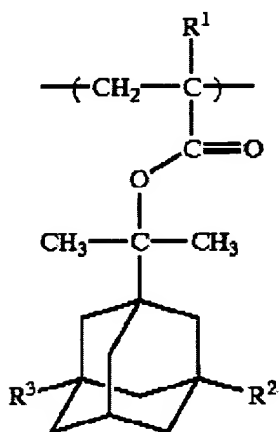
4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Art Unit: 1752

5. Claims 1-2, 8, 10 and 13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 6,440,636 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because both pertain to a compound having the structure



wherein R^1 is hydrogen or a methyl group and R^2 is a hydroxy group, which is an oxygen containing group. Both references also teach a photoresist composition comprising a polymer comprising the said structure and a light activatable acid generator (i.e., photoactive acid precursor). One of ordinary skill in the art would have been motivated by the direction of the claims of US 6,440,636 B1 to make a compound comprising the said structure and to use that said compound in combination with a photoacid generator to make a photoresist composition.

6. Claims 1-2, 8, 10 and 13 are directed to an invention not patentably distinct from claims 1-7 of commonly assigned U.S. Patent No. 6,440,636 B1, as discussed above.

7. The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned U.S. Patent No. 6,440,636 B1, discussed above, would form the

Art Unit: 1752

basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee is required under 35 U.S.C. 103(c) and 37 CFR 1.78(c) to either show that the conflicting inventions were commonly owned at the time the invention in this application was made or to name the prior inventor of the conflicting subject matter. Failure to comply with this requirement will result in a holding of abandonment of the application.

8. A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

Claim Rejections - 35 USC § 102

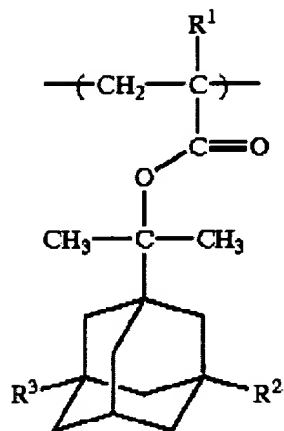
9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(f) He did not himself invent the subject matter sought to be patented.

10. Claims 1-2, 8, 10 and 13 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter. As discussed in the double patenting rejection above, the claims of US 6440636 B1 teaches a compound and composition thereof having

Art Unit: 1752



the structure

. However, the inventive entity of the said reference is different than that of the present invention. Thus, leading the examiner to believe that the inventor of the present application did not invent the claimed invention.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

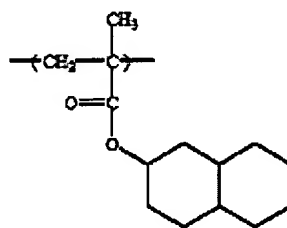
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-2, 8-10, 12-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoai (US 6,245,485 B1). Aoai teaches a positive resist composition comprising (A) a compound generating an acid upon irradiation of an active light ray or radiation, (B) a resin having a polycyclic type alicyclic group and a carboxyl group and (C) a compound having at least two groups having a specific structure (see abstract). Component A is a photoacid generator capable of generating an acid upon irradiation with light such as UV, far-UV, g-line, i-line, h-line, KrF excimer, ArF excimer, e-beam or x-ray. Suitable examples include oxazole derivatives (PAG1), s-triazine derivatives (PAG2), iodonium salts

Art Unit: 1752

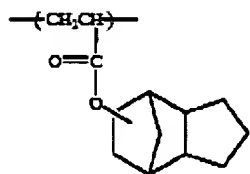
(PAG3), sulfonium salts (PAG4), disulfone derivatives (PAG5) and iminosulfonate derivatives (PAG6) (c.65, l. 21-c. 81, l. 10). The photoacid generator is added in the amount of 0.001-40 weight %, preferably 0.01-20 weight % (c. 81, l. 11-16). The taught composition is coated on a substrate for use in the production of an integrated circuit, exposed through a predetermined mask, baked and developed to obtain a good resist pattern (c. 84, l. 53-58).

The polycyclic type alicyclic group contained in the resin (B) is preferably an alicyclic group having 5 or more carbon atoms, which may have a substituent. The resin component (B) preferably has a repeating structural unit having a polycyclic type alicyclic group on the side chain thereof, represented by formula (XXII), (XXIII) or (XXIV). The carboxyl group maybe contained in the said polycyclic unit or in a repeating unit different therefrom (c. 9, l. 20-30). Structures representative of the polycyclic type alicyclic moiety are shown as structures (1) – (46) (c. 10, l. 60-c.15, l. 29). Specific examples of repeating units

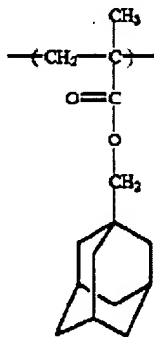


represented by formula (XXII)-(XIV) include:

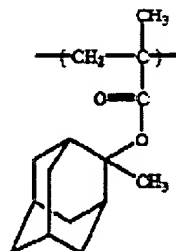
(a3),



(a10),



(a19) and



(a20) (c. 16-

Art Unit: 1752

19). It is the examiner's position that the given formula (a20) meets the limitations of claimed formula (2a-1). Given formula (a3) and (a10) meet the limitations of instant claim 9. Aoi however fails to exemplify the said compounds having an oxygen-containing substituent off of the polycyclic ring.

Aoi does however teach that preferred substituents of the polycyclic type alicyclic group include a hydroxyl group, a halogen atom, a nitro group, a cyano group, an amido group, and a sulfonamido group, alkoxy groups having 1-8 carbon atoms and alkyl groups having 1-8 carbon atoms (c. 10, l. 47-59). It is the examiner's position that one of ordinary skill in the art would have been motivated by the teaching of Aoi to make the taught polycyclic type resin (B) any of the disclosed structures such as (a3), (a10), (a19) or (a20) which are substituted with the preferred substituents including a hydroxyl group, or an alkoxy group having 1-8 carbon atoms in order to form a composition suitable for exposure using a light source of 220 nm or less and has a high sensitivity, good resolution and a high resistance against dry etching (c. 3, l. 40-51). Although, Aoi does not explicitly teach the specific compound of instant claim 16, one of ordinary skill in the art could readily envision a compound of formula (a10), which is substituted with a hydroxyl group or an alkoxy group.

Response to Arguments

13. Applicant's arguments filed July 18, 2002 have been fully considered but they are not persuasive. Applicants argue that the Aoi fails to teach and/or suggest a combination of an adamantane backbone and an oxygen-containing group. Furthermore, applicants argue that the prior art also fails to teach the combination of a decalin or tricyclo[5.2.1.0^{2,6}]decane ring and an oxygen containing group as set forth in the instant claims. The examiner respectfully

Art Unit: 1752

disagrees. The examiner agrees that such a compound is not exemplified by the cited prior art. However, Aoai clearly teaches a base resin comprising a polycyclic type alicyclic group on the side chain thereof, represented by formula (a3), (a10), (a19) or (a20). Aoai further teaches that the said polycyclic group maybe substituted wherein the preferred substituents include substituted with the preferred substituents including a hydroxyl group and an alkoxy group having 1-8 carbon atoms. One of ordinary skill in the art would have been motivated by the teachings of Aoai to make the taught polycyclic type resin (B) any of the disclosed structures such as (a3), (a10), (a19) or (a20) which are substituted with the preferred substituents including a hydroxyl group, or an alkoxy group having 1-8 carbon atoms in order to form a composition suitable for exposure using a light source of 220 nm or less and has a high sensitivity, good resolution and a high resistance against dry etching (c. 3, l. 40-51).

14. Applicants also argue that the prior art fails to teach the substituent being at a bridgehead position of the alicyclic ring. The examiner is of the position that in regard to formula a20, there are 9 possible substitution positions, 4 of which are bridgehead. One of ordinary skill in the art could readily envision an alicyclic compound of the said formula, which is substituted at the bridgehead position.

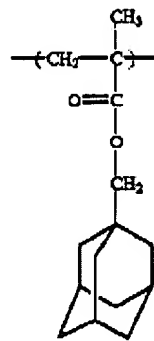
15. Applicants further argue that the present invention has unexpected results. The examiner has failed to find any evidence to support such a finding in comparison with the closest prior art.

Art Unit: 1752

Allowable Subject Matter

16. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17. The following is a statement of reasons for the indication of allowable subject matter: review of the prior art failed to disclose the specific compound of instant claim 15. Aoi



teaches a compound having the general structure (a19). However, it fails to teach a compound wherein the claimed R1 substituent is an isopropyl group and the R2 substituent group is a methyl group. One of ordinary skill in the art would not have been motivated nor would it have been obvious to change the taught hydrogen groups for an isopropyl group and a methyl group as set forth in the instant claim.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Sato et al. (JP 2002116544 A) which teaches a positive type photoresist composition.

Art Unit: 1752

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvette C. Thornton whose telephone number is 703-305-0589. The examiner can normally be reached on Monday-Thursday 8-6:30.

20. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet C. Baxter can be reached on 703-308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

21. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1495.



Yvette Clarke Thornton
Junior Examiner
Art Unit 1752

yct
June 2, 2003